Media Converter

10/100Base

to

100Base-FX Switching Converter

User's Manual

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FCC WARNING

This equipment has been tested and found to comply with the limits for class A device, pursuant to part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, the user will be required to correct the interference at the user's own expense.

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Features

- Automatic MDI/MDI-X selection on RJ-45 port
- Link Fault Signaling (LFS)
- Store-and -forward at full wire speed
- Auto-negotiation, N -Way support
- Half/Full-duplex mode selection
- Remote and local loopback Test via DIP switch
- Extends distance of up to 2km (6600 feet) multi-mode fiber and 60km (198000 feet) long-haul single mode fiber
- Compatible with other 10Base-T & 100Base-TX /FX devices
- LEDs for at-a-glance device status
- External and Internal Power Supply models
- FCC Class A & CE approved

Specifications

Standard: IEEE 802.3 (10BASE-T Ethernet);
IEEE 802.3u (100BASE-TX/FX Fast Ethernet)

Connector: 1x duplex fiber optic connector ;
ST / SC / MTRJ / WDM single fiber types
1x UTP 100/120ohm; RJ-45 type

Max. Distance: **UTP:**

100m	Cat 3/4/5

Fiber Optic:

2km	MM, dual fiber
60km Long-haul	SM, dual fiber
20km (66000ft)	SM, single fiber
60km Long-haul	SM, single fiber

Power: External power supply: 12V DC @ 0.8A
Please see Appendix A for Internal Power Supply

Temperature: Operating: 0 to 50 Celsius
Storage: -20 to 70 Celsius

Humidity: Operating: 5% to 90%RH
Storage: 5% to 90%RH

Emissions: FCC Part 15 of Class A & CE approved

Dimensions: 135.5x 86x 29 mm (LxWxH)

Switches for: **DIP 1 -** Auto-negotiation

DIP 2 - Copper port duplex mode

DIP 3 - Copper port data bit rate

DIP 4 - Fiber port duplex mode

DIP 5 - Link Fault Signaling (LFS)

DIP 6 - Local Loop Back (LL BK)

DIP 7 - Remote Loop Back (RLBK)

Package Contents

- One converter unit
- One AC adapter (please check connector type)
- Self-adhesive pads (4 pieces)
- User's Manual

2
Installation

To install your converter, please see the following procedures:

- MDI / MDI-X Connection
- Switch Settings
- Network Setup With Converter

MDI / MDI-X Connection

The auto-MDI function alleviates the worry of cable type configuration when connecting the converter to a 10/100Base-TX device. The converter will automatically detect the connection information and establish the optimum setting.

Switch Setting

DIP 1 – Enables / disables auto-negotiation

DIP 2 – Copper port (RJ45) duplex mode: full or half –duplex

DIP 3 – Copper port (RJ45) data bit rate: 10Mbps or 100Mbps

DIP 4 – Fiber port duplex mode: full-duplex or half-duplex

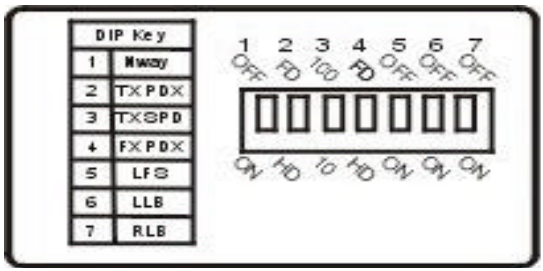
DIP 5 – Enables / disables Link Fault Signaling (LFS)

DIP 6 – Enables / disables Local Loop Back (LL BK)

DIP 7 – Enables / disables Remote Loop Back (RLBK)

Important:

In order to configure switches 2, 3 and 4, switch 1 (auto-negotiation) must firstly be disables



Notes:

- **Setting the duplex mode is feasible while the media converter is"on-line".**
- **All models in this series feature the above set of DIP swiches.**

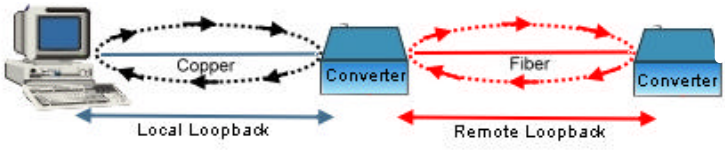
Link Fault Signaling (LFS)

The LFS LED will immediately light to indicate when a cable has been severed or when some other cause of disruption in service has occurred. To fully appreciate the benefits of LFS, Four converters can be used to build a primary and a secondary link. They must be connected to a switch that supports Spanning Tree or Fast Spanning Tree protocals. By default, transmission of data will travel via the primary link. Once a fault has been detected by the converter, transmission will automatically be switched to the secondary link, resulting in 'non-stop' network connectivity.

Note: The LFS feature influences both fiber and copper segments. Therefore, when disruption occurs on either segment, the LFS feature will be activated and the LED will light to indicate that the entire connection is down.

Loopback Test

This converter features dip switches to activate local and remote loopback test functions. Use local loop back to check if the copper segment is connected properly, and use remote loop back to check if the fiber segment is connected properly. Please see Diagram below:



Dip Switch 6 ON: enables local loop back function
OFF: disables local loop back function

Dip Switch 7 ON: enables remote loop back function
OFF: disables remote loop back function

Please make sure that the cables are connected properly before getting started. Conduct either the local or remote test and not both at the same time.

Note: Deactivate both local and remote loopback test functions for mormal converter operations

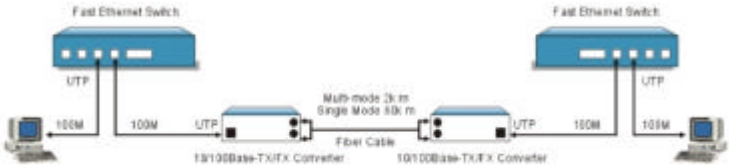
Network Setup With Converter

To effectively expanding a Fast Ethernet network, position two □ converters back-to-back as illustrated.

- **Two LAN Switch workgroups**

  Example:

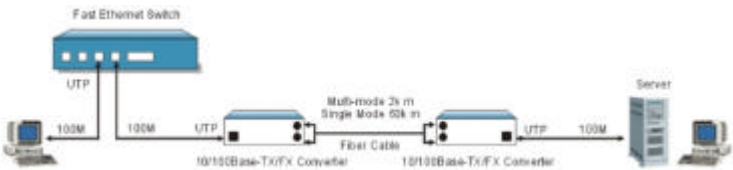
  switch←→CONVERTER←→CONVERTER←→switch



- **A 10/100 Switch and a network's server**

  Example:

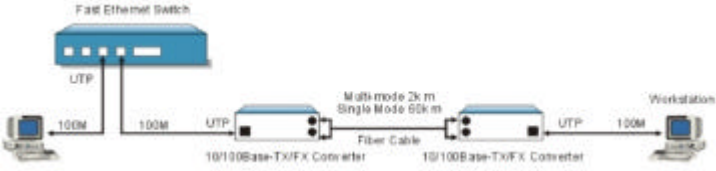
  switch←→CONVERTER←→CONVERTER←→server



- **A 10/100 Switch and workstation (WS)**

Example:

switch←→CONVERTER←→CONVERTER←→WS

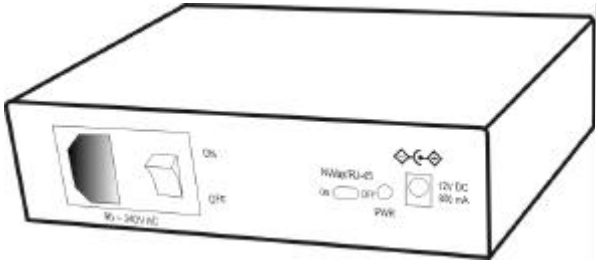


3
LED Indicators

This converter has LED indicators located at the front of the device. The LEDs have been designed to give easy at-a-glance network status, and provides 'real-time' connectivity information. Please see below for an interpretation of their functions:

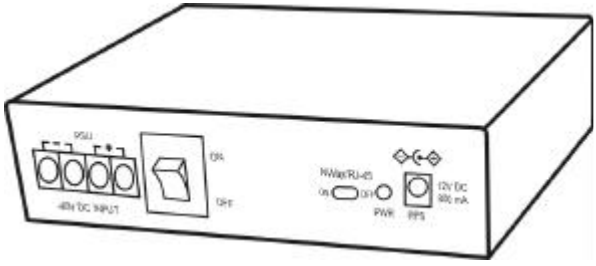
Unit LEDs:	PWR:	Red light - indicates normal power
Port LEDs:	FDX:	Amber light - indicates full-duplex mode
	COL:	Flashing amber light - indicates collision
	LNK:	Green light - indicates receiving link pulses from a compliant device
	ACT:	Flashing green light - indicates packets are being transmitted or received
	100:	Green light - indicates packets transmitted at 100 Mbps

Appendix A
Internal Power Supply Models



Rear View of Converter with AC Power Supply

Power: 90 - 240V AC (Optional 12V Adapter)
Dimensions: 109 x 174 x 44.3 mm (LxWxH)



Rear View of Converter with DC Power Supply

Power: -48V DC (Optional 12V Adapter)
Dimensions: 109 x 174 x 44.3 mm (LxWxH)

Appendix B

Converter Mounting

This converter can be placed in any location that will make its installation convenient. If you place the converter on a horizontal surface or on top of existing networking equipment, please affix the four rubber pads included in the package.

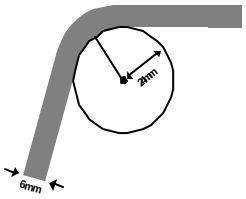
This converter can also be mounted on a vertical surface. Simply use the underside of the unit as a template to measure and mark out the position of the holes on to the surface where the unit is to be installed. Then use two screws to mount the converter firmly in place.

Please exercise caution when using power tools. Also, install this unit away from damp or wet locations, or in close proximity to very hot surfaces. These types of environments can have a detrimental effect on the converter and cables. An ideal location is a lightly cooled place such as a typical equipment room.

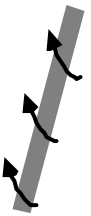
Appendix C

Cables

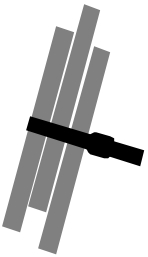
The following are some recommendations as to what you should and should not do when installing cables. Remember - cables are the deciding factor in network performance.



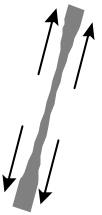
Try to maintain a bend radius of (min.) 4x the diameter of the cable for UTP and 100x for fiber.



Try not to allow the cable to twist too much - this creates a strain on the internal cables.



Place cable ties at regular intervals - do not over tighten cable ties - try to avoid using with fiber.



Do not stretch the cable especially on corners, in vertical cable trays and when spanning long distances.

1 Introduction

Product Overview

The Enhanced 10/100 to 100Base-FX Switching Converter is designed for large workgroups who demand higher speed and wider bandwidth. This converter allows migration and expansion from a copper-based Ethernet to a fiber optic Fast Ethernet.

It features automatic MDI detection setting. This feature allows for simple direct connection to a workstation, switch or hub. Therefore, network managers no longer need to worry about cable type configuration when establishing a connection between RJ-45 ports.

This media converter is equipped with an RJ-45 port and a fiber optic ST or SC port. This allows it to quickly integrate a 10/100Base-TX network into a 100Base-FX (fiber) network.

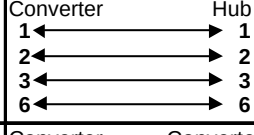
It features DIP switches for manual half or full-duplex mode configuration on the fiber port. In full-duplex mode, this converter has the ability to support distances of up to 2 kilometers for multi-mode fiber and up to 60 kilometers for long-haul single mode fiber between a LAN switch, file server or another networking device.

Appendix D

About RJ-45 Cables

When connecting your network devices, use standard Category 3 eight-way cables for 10Base-T configurations and Category 5 cable for 100Base-TX. The pin assignments are as follows:

Pin 1	**TD+**	**Pair 2**	**White/Orange**
Pin 2	**TD-**	**Pair 2**	**Orange/White**
Pin 3	**RX+**	**Pair 3**	**White/Green**
Pin 4	**N/A**	**Pair 1**	**Blue/White**
Pin 5	**N/A**	**Pair 1**	**White/Blue**
Pin 6	**RX-**	**Pair 3**	**Green/White**
Pin 7	**N/A**	**Pair 4**	**Brown/White**
Pin 8	**N/A**	**Pair 4**	**Brown/White**

Application	Cable Type	Application
Converter to Converter or Network Adapter	Straight-through Cable	
Converter to Switch	Cross-Over Cable